

biology-348173_Supplementary material/bideshi et al.

Figure S1a: Amino acid sequences of Chilo iridescent virus 6 (CIV 6, IIV6)-178R ORF orthologs in classified (a) and unclassified (b) invertebrate iridescent viruses (IIV).

Conserved cysteine residues in vs2C-ad motifs are typed and underlined in red and, whereas the complete motif is highlighted in yellow. Motifs that are repeated in tandem and rich in arginine-serine residues are highlighted in gray. The two 38-residues motifs that are separated by a conserved 14-residues linkers are typed in blue.

a. Classified IIVs

>IIV3-100L ; pI = 10.17

MNDVHDCLVWVNDPYFHPISKRPIKYKGPTWRHYDKKCDLLGITGPKATKSPSRRTTRSP
SPSRRTTRSSPSRRTTRSSPSRRTTRSPSPSGRRKQGPAVYCGNNALDEGLLDGSKVVG
TRYQCLQKGVAVGLNNPVLHHSPNYQPIVDAKIYCGTGSKLPASKLRFGTPTCEMGKGYQ
IGQNKRFQOSGLQQGPYIWEEDGWYKIIVPKN

>IIV6-378R ; pI = 10.61

MTSKCSKWHEQPLINPLTNRKIKKNGPTYKELERECGPPPRRSSPRRSPRRSPRRSSPR
RSSPRRSPRRSSPRRSNQRIQLYCGNNARDEGLINGTKTLGTRYQCLKKGIGKGLNEPI
LKYNNDYEPIENVRIYCGNGALPNNKDRFGTRDECLRKGFAVGQKQKYIRDGGIQRGPV
VEENGWYKAYLPR

>IIV9-085R ; pI = 10.71

MANKCVMWHLQPLVNPVTNRKIKRGGLVYQKLEQECGPPPSGSRRSPSPSRRRSPSPSRR
SSRRSPSPSRRSSRRSPSPSRRSLPPPQRQPELYCGNNSRERGLVDGTVLGTTRYQCLK
GIGRGLKEPIFTWSDEYSPIEEVKVFCGNGDVLQNKDRFGTRDECLRKGFAVGQHOKYT
RDGGIQRGPVVSSEDRGWYKVYLPSALGPPVLGIRN

>IIV22-ORF138R ; pI = 11.45

MTSNCAKWHSQPLVNPVTNRKIKVGGPKYKELERECGPPPSRRSPSPSRRRSPSPSRR
SRRSPSPSRRRSPSPSRRRSPSPSRRRSPSPSRRRSPSPSRRRSPSPSRRPTEIYCGNNA
RDEGLINGSKILGTRYQCLKKGIGRGLHEPILSYTNDYSPIEEVKIFCGNGNVLQNKDR
FGTRDECLRKGFAVGQNKYTRDGDQIRTPVVSSEDKGWYKVYLPSALGAPILRR

>IIV22A-136R ; pI = 11.02

MTSNCAKWHSQPLVNPVTNRKIKVGGPKYKELERKCGPPPSRRSRRSPSPSRRRSPSP
SRRSRRSPSPSRRRSPSPSSRRSPSPSRRPAEYICGNNARDEGLINGTKILGTRYQCL
KKGIGRGLHEPILSYTNDYSPIEEVKIFCGNGNVLQNKDRFGTRDECLRKGFAVGQNK
YTRDGDQIRTPVVSSEDKGWYKVYLPSALGAPILRR

>IIV25-136R ; pI = 11.37

MANKCAMWHLQPLVNPVTNRKIKRGGLVYQKLEQECGPPPSGSRRRSPSPSGRRSPSPSR
RRSPSPSGRRSPSPSRRRSPSPSLRRSSRRSPSPSLRRSSRRSPSPSRRSLPPQRQPELY
CGNNAREQLLNGTKVLGTTRYQCLKKGIGRGLNEPIFSYSDEYSPIEEVKIFCGNGNVVP
QNKDRFGTRDECLRKGFAVGQHOKYTRDGGIQRGPVVSSEDRGWYKVYLPSALGPPVLGIR
N

>IIV30-135R ; pI = 11.02

MTSNCAKWHSQPLVNPVTNRKIKVGGPKYKELEQKCGPPPSRQSRSPSPSRQSRSPSP
SRQSRSPSPSRQSRSPSPSRRSRRSPSPSRQSRSPSPSRRPTEIYCGNNARDEGLIN
GTKILGTRYQCLKKGIGRGLHEPILSYTNDYSPIEEVKIFCGNGNVLQNKDRFGTRDEC
LRKGFAVGQNKYTRDGDQIRTPVVSSEDKGWYKVYLPSALGAPILRR

>IIV31-ORF130R ; pI = 10.43

MSKICKDWHEQPLVNPVTNRRIKKNGPTYRELEKKCGPPMTRRSPRRSSPRRSPRRSS

PRRSSPRSSPRSSPIRRNPETYCGNNAKDEGLTNGTKVLGNRFQCLRKGIGRGLNEPI
FTYSEEYEPINIKVYCGNNANLPRDKDRFGTRDECLRKGFAVGQKQKYSRDGGVQKEPI
ITQDRGWYKVVPRST

b. Unclassified IIVs

>117R Cherax quadricarinatus iridovirus - 117R ; pI = 11.70

MRVNENICQEFSNRPSVNPLTNRKIQKGKGVNELKKKCDSLGCRVQSRSSRSRSTRSS
RRSSRRRTSPCRPCRRSSRSRSTRSRKRPARKTPPRTCPGACPRPMSPRRGASPRRRKPM
GPFLPTNEIIPGMSPSRVRRIQKYTPKRPSTYYDARSRPFKPANDIIPGMSAAEVRI
KKKYAQPAEESVYFDALDLD

>Shrimp hemocyte iridescent virus isolate 20141215- missing ORF in the annotation of MF599468.1; pI = 11.70

MRVNENICQEFSNRPSVNPLTNRKIQKGKGVNELKKKCDSLGCRVQSRSSRSRSTRSS
RRSSRRRTSPCRPCRRSSRSRSTRSRKRPARKTPPRTCPGACPRPMSPRRGASPRRRKPM
GPFLPTNEIIPGMSPSRVRRIQKYTPKRPSTYYDARSRPFKPANDIIPGMSAAEVRI
KKKYAQPAEESVYFDALDLD

Figure S1b. Amino acid sequences of SfAV1a-048R ORF orthologs

Conserved cysteine residues in vs2C-ad motifs are typed and underlined in red, whereas the complete motif is highlighted in yellow. Motifs that are repeated in tandem and rich in arginine-serine residues are highlighted in gray.

>DpTV (previously DpAV4)-ORF008 (one 2-cysteine adaptator and one remnant at the N-term ; pI = 9.29

MALPKLSAAEFATMSAAWEANKMSDPENPTNPLSGRKIKRDGAVWKKVENYFNGATTPVK
SPKGRSPKKEAKPRGRSPKKEAKPRGRSPKKEAKPRARSPKKAISGSSPRREA AAKPAPK
AGAKPTEQDCAEFDRNPGVNPLTSRKIKIDGPVYKKLQKDCADIAPVAGPSGLAGPSGLA
GPSGLGSGVAGSVSVSPDVVEIDNKVFVDS AANITRQEAFAKLADDRGYVVKLPETKC
AFTAFGTYNMTSDEVRNIVIVEYATRCGATNRPFVFDAMIEDIRSGDGDCSRDTLLILLS
VAFDCTIRVFYEEKTFELISEGSINRLVQLGLTLDGHYVVMIKTGEQQILSLPATVTC
SPVVSQRAAPPTPVVSPEDVASMVEALESVRNKPRIYTLLQSEQALLKTIGLI

>HvAV3e-ORF061 (three 2-cysteine adaptator) ; pI = 12.32

MASRRKPSRLTAAQCETFIRNNKAVSPLTNKPIDVYGRAAAFRFRDCNLSPPPTKYTSTV
CKKFLANKSVSPYSGRPIKRGAKLYNDLTKHCSGTRSSPARSPARRRRVIRSPSPNRRS
SSPRRSASPQRRRASQPQRRRASQPQRRRASPDRSKPAKRTAANADTRPDLCATFSRNESIN
PITGKKLIGTSPIRKAWHRMCAGTPNTRATKCMAFDKNDKKNPFTGRSIRPEQPAYRMVY
SMCHGVPYRSPKRTRRSVRRSPSPRPYTATSVTRKYRRIKTPARSRSRSTRNSVGRRT
TAVKSRKSPARRQSVARSRSRSPVRRKTRSRKSPARRQSVARSRSRSPARRQSV
ARSRSRSPARRQSVARSRSRSPARRQSVAKSRSPARRQSVAMSRSTRSR
QPMTAMRRSTSRARSRSRSPARRQSVARSRSRSPARRQSVAMSRSTRSR
RINNSRSRSPARRQSVARSRSRSPARRQSVARSRSRSPARRQSVAMSRSTRSR
NGFQPVVVAQNTTQSLLNIVKFQIREGNLKWLPNDQDVPTYYTSSRPFADRMKKN

>HvAV3g-ORF066 (three 2-cysteine adaptator) ; pI = 12.33

MASRRKPSRLTAAQCETFIRNNKAVSPLTNKPINVYGRAAAFRFRDCNLSPPPTKYTSTV
CKKFLANKSVSPYSGRPIKRGAKLYNDLTKHCSGTRSSPARSPARRRRVIRSPSPNRRS
SSPRRSASPQRRRASQPQRRRASQPQRRRASPDRSKPAKRTAANADTRPDLCATFSRNESIN

PITGKKLIGTSPIRKAWHRMCAGTPNTRA TKCMAFDKNDKKNPFTGRSIKPEQPAYRMVY
SMCHGVPYRSPKRTRRSPVRRSPSPRPYTATSVTRKYRRIKTPARSRSRSNSVGRRT
TAVKSRTKSPARRQSVARSRSRSKSPVRKTTRSRTKSPARRQSVARSRSRSKSPARRQSV
ARSRSRSKSPARRQSVARSRSRSKSPARRQSVAKSRSRSKSPARRQSVAMSRRSRSRSR
QPMTAMRRSTSRARSRSKSRKAMTASRSRSRSVSRYMNPVPTTTKKKRVSPVSRG
RINNSRSRSASRARSGLSPYRGRVLLSPIPDGATPMSRSQLINIANNMNAELRHIVVS
NGFQPVVVAQNTTQSLLNIVKFQIREGNLKWLPNDQDVPTYTSSRPFADRMKKN

>SfAV1a-ORF048 (four 2-cysteine adaptor) ; pI = 12.18

MASKRKPARNLAEQCETFKRNKQAVSPLTNCPIDKFGRTAARFRKECDIASPPTRYTSSV
CKKFLANKTVSPYSGRPIKPGKKLYNDLEKHCSGRGTSPSRRSRSMSPRRRASPARRR
ASPNRSKPAKRTAANADERPDYCTNFHRDESRNPLTGKKLVPTSPIRKAWHKMCSGTVQT
RSTKCIAFDKNDKINPFTGRPINENNDTYRMIYSMCHGARYPKKRSPRRKNKSPARTVS
FSPNRRSRSPSIGARRRPARPLRPSTSRSKTRSPSKSRSPSRRRSASKSRSPSRRRSASK
SRSPSRRRSASKSRSPSRRRSASKSRSPSRRRSASKSRSPSMRRSMARRSPSQRRSTS
VARRSPSQRRSTSVARRSPSQRRMSVARRSPSQRRMSVARRSPSQRRSTSVARRSPSQ
RRSTSVARRSPSQRRMTTPSRSPSRQRTSSSRMSARRSPYSMSPYRGRVLMTPMPE
DAEPLSQDQLMRIASRMNVAQLRHVVTRNGFQVPDVAFNTNSSQLLNLVRYHIREGNIKW
LPANDQNVPNYRTTARPFMDRMKKN

>TnAV2c-ORF141 (four 2-cysteine adaptor) ; pI = 12.28

MPQATTPRRRRNAQNMNNSAERVTRTQCEDFISSLQKKNPITNRKIDVFGSTAASLRNC
SMKHNYEFTAPRRSKANMKCTEFLSNPRENPITGRKLAANKPTYKKFKVVCGSPGRISPS
PRRRVTQTRSPSPRRRATQSRSPSPRRRVQTRSPSPSRRRRSRSRSNSVEFSTNCTKFI
NNDKINPKTNKNIKYGPTYKKIVTKCKQNLNESPKLPQQMCNEFHQNAKKKNPITGRKI
AVGSVVQRRIVSQCGGFRSPSRSRSASRRRSPSPARSRSASRRRSPSPARSRSRS
ASRRRSPSPARSRSASRRRSPSPARSKRSQTRSRSTSRRSASPARKSRSQTKSR
SRSPSPARSRSRSTSRRSASPARKSRSQTKSRSPSPARSRSRSTSRRSASPARKSR
SKTRSRRSASKRRSASPARKSRSQTRSRSPSPARKSRSQTRSRSPSSSSSSSR
SRSTSSSRFRSLEQKSLPELRKYAIDLKSLTMGHVYSLDKYSLRLIKSKEGSTVSKSS
RSRSCSSASSKTNVGTGRRGITDYYSMTVDQLRSLASAKKLGTEEILRNLAQALRVL
LTSKTPIRLTPQSPNRTFRLQTPQPGTSDPLVSKNFGVFKQNRLL

IIV6-ORF232R (two 2-cysteine adaptor) ; pI = 10.41

MNNNQCMRKKLDELNRNIARSYNISITGKKKQQLCDEIIDYQKNNPPRRSPRRSPRR
ISPECEQWLANKGINPRTGKAIKIGGPTYKKLEMECKEASPKIPSPVRQSPVHSPVRS
VRQSPVRFVEKTKGALNKMKKDQLIDFAQSLGLNPGKLLKPALVDLIFVNQKPPRRSPS
PRRSPSPRRSPSPRRSPSPRVFVEKTKGALNKMKKDQLIDLAQSLGLNPGKLLKPALVD
LIFVNQKPVPIRASSSRSSRSTRSSSTKPSRRSSSRSSRSSSRSSRSSSRSSR
SSRSSRSTSRSLSKRSIRNISTVGDLEDLVASNLPPIAIPESLSRSLSPSRTDFHEAE
IELGSDFDLNNLPENRIAEKQLNVLAKQNGFRMINVPLDGNCMFSVIGRAFNTSSSVIR
QHTVDYLRRCKGSFDHIPANIDDPTINWNDYIDRLEEDACWGDNTALFAASLALNFQAH
LQVAGGDEGSWIRFGVNETNMGRIVNMGYLDNFHYIALEPFSGRLDILSIPSTHSCPPP
EISNRRDEEIRRDEEVEDEVIGERIVREAEVIERELRQEEELTSIVSTKRSRPSIPPKI
STEHRRTPKLRPSVPRPSSIRQSQPNVAALARLETLTKIKDIIDALQRPLENKLSTLTNT
EKAIMQCIGVA

>IIV31-ORF015R (one 2-cysteine adaptor) ; pI = 9.40

MNRNQCMKKKDELVEIALSMNISVAGKTKKLCNEILSMQAVPAAPVSPDIASGSDCE

EWIKNPGVNPKTGRAIKIGGPVYKLEKECGEPEPEEEEEAVVTAIPAIPLYTKGVLNKM
KKNQLEIALSLSINPDKKLPKLVVEILIQQTRAVQVPRSPKLVVEILIQQTRAVQVP
RSPSPRRSPRRSPVYTKGALNKMKKQDLINLSKTLKLETNGLKQDLIQRILNSYIV
EIEEIAAPRSPSPRRSPRRSLSPRRSPRRSPSRQSTSVELEISARDVRKISNVSDL
NKLVASIHSPVIRRTSESSFFKNLRRDYSDGKIPRETEFKDLEILAQAAGFKMINVPLDG
ACMFSVIARSFGTTGANIRKIVVDYLRKCEESFAYLFEDYTIPERYLERLEEDDCWGDEL
TLFAATKALNFQAKVLNQHNQRQWVDVGS DAGRIIYLGYYQFHVVALEKLEKLEGEDET
LILPTSPICPPPMGVSSRSPRIPSRFSPVPPSIRASVIKSLQPSIPRSLTPAFTPQPTR
LMTLTNIGAIIRELQIPLNKLTTLNDTNTAIMKCVGLA

>Cherax quadricarinatus iridovirus - O57R ; pI = 9.72

MEFNKRKYKDLQIVKSGEILTVPARKISSSPVCIQWFNNPNVNPRTNRKIKTFGPTYRAL
TDECTRKRVRSDPREQRKPPRVTPRVISQPTS NKSWFDIRLRTGIEINNMLREMDVKQWN
LCMSGTKSSKFQKNFTSIEKIGLGSFGQIYKARLSDGNSVVKAEAYLKLPEKRLAEKYTK
KGEKWEDVDVKSYPRENKILELVNQLLS RKCPNFVYVYVNI AFCDGCVIKNYYQRRSTRG
ACYITFMEPADDNLRNTELRTYDQQLSVLYQLLISVHAIHKYYTIWHRDIKSTNIFIKKI
KPGGYFKYVINGKNYFVKNTGIVAYLADFGVSEIMSPLYSSGRYYGTRNGEVAKMDRKIK
GSNLYWKPIYKGREIRYWYDETSSKNLDYDVIKTRNKIATKNPIKSSRPIDLNDNHKF
PPFEFGSDIQDVVNVFLGGKQQEQPGNHSRMPYLNSKIRSMLELAKANTTIVNSIYGTVK
YILADEMLNALYIEPKVVDKIIDTFEMY

> Shrimp hemocyte iridescent virus isolate 20141215 - 94L ; pI = 9.72

MEFNKRKYKDLQIVKSGEILTVPARKISSSPVCIQWFNNPNVNPRTNRKIKTFGPTYRAL
TDECTRKRVRSDPREQRKPPRVTPRVISQPTS NKSWFDIRLRTGIEINNMLREMDVKQWN
LCMSGTKSSKFQKNFTSIEKIGLGSFGQIYKARLSDGNSVVKAEAYLKLPEKRLAEKYTK
KGEKWEDVDVKSYPRENKILELVNQLLS RKCPNFVYVYVNI AFCDGCVIKNYYQRRSTRG
ACYITFMEPADDNLRNTELRTYDQQLSVLYQLLISVHAIHKYYTIWHRDIKSTNIFIKKI
KPGGYFKYVINGKNYFVKNTGIVAYLADFGVSEIMSPLYSSGRYYGTRNGEVAKMDRKIK
GSNLYWKPIYKGREIRYWYDETSSKNLDYDVIKTRNKIATKNPIKSSRPIDLNDNHKF
PPFEFGSDIQDVVNVFLGGKQQEQPGNHSRMPYLNSKIRSMLELAKANTTIVNSIYGTVK
YILADEMLNALYIEPKVVDKIIDTFEMY

>EHNV-ORF089 (Epizootic haematopoietic necrosis virus ; ACO25279.1) ; pI = 9.42.

Orthologs in other ranavirus are found in the European catfish virus (YP_006347710.1), the Tiger frog virus (YP_031597.1), the Common midwife toad ranavirus (AFA44994.1), the Soft-shelled turtle iridovirus (ACF42240.1), the Rana grylio iridovirus (AFG73063.1), the Ambystoma tigrinum virus (YP_003855.1), the Grouper iridovirus (AAV91044.1), and the Singapore grouper iridovirus (YP_164134.1).

MATNYCDEFERNPTRNPRTGRTIKRGGPVFRALERECS DGAARVFPAAAVRGAAAARAVS
PRVAVASPCPEFARDPTRNPRTGRPIKRGGPVFRALERE CADYGGASPRRVSPARAFPNR
RASPARRQSPAEEAEA SPCPDFARDPTRNPRTGRTIKRGGPTYRALEAE CADYGRLSPIR
SPWSDWSSTGSSPFRSHMRKSPAISKSPARKSPARKSLARYAEYLTSDETEVDYD
AMNVIRSKVGP GVCERFAADPTRNPVTGSPLSRNDPLYTDLMEI CKGYPDTPLTKSLTG
EGTDD DTCEAFCRDPTRNPVTGQKMRRNGIEYQMF AEED CSGISRPSGVSR TSGPSGTS
GTSASSRPPNSFEASGVARVPGTPSVSRDEPRWMSISTRHDYDESNPMSVAFRLRHVKD
IRKFLRTVKPGRSGFCATDNGGWLGSAAVSDK VIGQGSWGSVHMVKFRDFPKEFVVKEAV
LMSVSEKRRYKPTVVWDEWAAGSMPDEVVVNNMVTEIAATGMTFPVPLTAGAGACDSCNP
QLLEKAANVTKCYLQAMEAAADFLDRVLTMSPDQAASALAQILLGLQSLQTTLGIMHND

IKAHNILVKRVPPGGYWKVTDSENGQVFYIPNEGILCMLADYGVVRLVKPAVGMMDTLYGT
 RNARFVPRDVGRWGKGAGTEYVVTPIRSKISVIVRGGRFVGVPEPNKAVRYWKNTDTSKVG
 DVITTNVNFYMGYDIEPDMQVQLDDTNSFPIWESRGDVADCVRFTVGGKRASQPGFHGLF
 YKKTGSAWEKAAETVAKQNPLFSGFALDGSGLKYIRAATACAYIFPGMAVPRPGEREIES
 FTM

Figure S1c. Proteins having the potential to function like SfAV1a P64 protein in some invertebrate iridoviruses (IIV) and members of Lymphocystivirus and Megalocytivirus

Our results provided evidence that the SfAV-1a P64 orthologs found in AV, in some invertebrate iridoviruses and in *ranaviruses* compose a family of large DNA condensing proteins with distinct domains not present in other protein families with a similar function. Its absence in some invertebrate iridoviruses (IIV3, IIV20, IIV22A, IIV25 and IIV30) (Delhon et al., 2006; Piégu et al., 2013) and in vertebrate iridoviruses of the *Lymphocystivirus* and *Megalocytivirus* genera raises questions about which candidate proteins could potentially condense viral DNA for encapsidation in virion. Data presented here, and more specifically those obtained with the rN-term and rC-term domains of SfAV1a P64, provide evidence that the main sequence determinants to bind viral DNA and to assemble DNA-protein aggregates are not the vs2C-ad motifs, but results from the properties of the motifs repeated in tandem and rich in arginine and serine residues that occur both in the N-terminal and the C-terminal region of this protein. In agreement with this conclusion, vs2C-ad motifs are known to be found fused to OTU/A20-like peptidases and S/T protein kinases, proteins that have no DNA binding activities and in which these motifs presumably play a role as adaptors that connect the kinases and OTU/A20 peptidases to their specific targets (Iyer et al. 2006). In SfAV1a P64 and its relatives, the vs2C-ad motifs could therefore be involved in interactions of other virion proteins, including the major capsid protein, with the condensed viral DNA-P64 complex.

In invertebrate iridoviruses, all viruses encoded a protein related to that encoded by the CIV IIV6-178R ORF. This protein met the motif requirements to have a role similar to that of SfAV-1a P64 in condensing viral DNA for encapsidation. To identify candidate proteins that could function in condensing viral DNA for encapsidation in iridoviruses that do not encode a SfAV-1a P64 relative, our searches were focussed on proteins containing vs2C-ad motifs and short tandem repeats rich in arginine and serine residues, with a pI above 9, absent together in AV, IIV3 and *Ranavirus*, and present in all members of the genera *Lymphocystivirus* or *Megalocytivirus*. Among *Lymphocystivirus*, no candidates were found in the Lymphocytis disease virus (Tidona and Arai, 1997). However, we have found in *Megalocytivirus*, a gene family occurring in all virus members and which possesses all criteria, including the difficulty of alignments encountered with the SfAV-1a P64 relatives. This family corresponded to relatives of the Turbot reddish body iridovirus ORF52L.

ORF52L in the Turbot reddish body iridovirus

MPSTTSKCNQLRQNKYTVNPVSNRNIAPRGDTANTLRRICEQPRLCAEYKRSPRYNPWT
 DRRLAPGSPKHNLISGMCGGYAPNWSRELVRTNRRAHNTNSRLQREWLETVNRPGAHVP
 RLNDACALYDDPTVNPFTDGPLRRYSPIDDLRYRNCEPAETKRMQCRAFEANPDVNP
 TGRKISPTGPIASSMRRRCMN YDAVPISRSEAGPRGGRSIGVNTPFSAANNSNISDTQLS
 GSRRSIAVNTPSSSHAHSLLSISSSSSDSPAGPSGVSVGVGPTPGIVIKRSPVRERAE
 IIQNYTASRGQQ

ORF055L in the Infectious spleen and kidney necrosis virus

MPSTTSKCNQLRNNRYTVNPVSNRAIAPRGDTANTLRRICEQPRLCAEYKRSPRYNPWT

DRTLAPGSPKHNLISGM^CGGYAPNWSRERVRTNRKAHKTNSRLQREWLETVNRPGAHVP
RRDDACALYDDPTVNPFTDEPLRRYSPIDDLRYNCESAEIKRRQ^CRAFEENPDVNP
TGRRIPTGPIASSMRRR^CMN^YNAVPIRSEVGRGGRSIGVNTPFSA^NNSNISDTQSS
GSHRSIAVNT^PSS^HSAHSL^LGTISS^SSS^SDN^SSPAGPSGVSVGVGRTPVALKRSPVRERA
EIIENY^TASRGQ^Q

ORF 106R in the Red seabream iridovirus

MPSTT^SK^CQ^LRRNRYTVNPVSNRSIAPRGDTANTLRR^ICEQ^PRL^CAEYKRSPRYNPWT
DRTLPGSPKHNLISGM^CGGYAPDWSRERVRTNRKAQNTNSRLQREWLETVNRPGAHVP
RRDDA^CALYDDPTVNPFTDGPLRRYSPIDDLRYNCEPAETK^RIQ^CRAFEENPDVNP
TGRRIPTGPIASSMRRR^CMN^YDAMPISRSEVGRGGRSVGVNTPFSA^NNSNISDTQFS
GSRRSIAVNT^PSS^GSHSAHSL^LGSISS^SSGSDNSSTAGPSGVSVGVGPTPGIVIKRSP
VRERA^EIIQNYTASRGQ^Q

ORF52L in the Turbot reddish body iridovirus

MPSTT^SK^CNQLRQNKYTVNPVSNRNIAPRGDTANTLRR^ICEQ^PRL^CAEYKRSPRYNPWT
DRRLAPGSPKHNLISGM^CGGYAPNWSRELVRTNRRAHNTNSRLQREWLETVNRPGAHVP
RLNDA^CALYDDPTVNPFTDGPLRRYSPIDDLRYN^CEPAETK^RMQ^CRAFEANPDVNP
TGRKISPTGPIASSMRRR^CMN^YD^AVPIRSEAGPRGGRSIGVNTPFSA^NNSNISDTQLS
GSRRSIAVNT^PSS^HSAHSL^LGSISS^SSS^SDPAGPSGVSVGVGPTPGIVIKRSPVRERA^E
IIQNYTASRGQ^Q

References: Supplemental Figure S1c.

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